

Community for Data Integration (CDI) FY19 Request for Proposals Process

Leslie Hsu, CDI Coordinator
October 24, 2018
1-2 pm ET

U.S. Department of the Interior
U.S. Geological Survey

Leslie Hsu – work for Core Science Systems in the Core Science Analytics and Synthesis and Libraries Program in Denver. Coordinator for the Community for Data Integration or CDI. Leah Colasuonno, another coordinator, is here. Madison Langseth also helps to coordinate CDI. You can contact us at cdi@usgs.gov.

Topics

- Overview of CDI
- Background and overview of RFP
- New in FY19
- Examples of successful projects
- Overview of Submission and Voting
- Key Dates
- Questions



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Today I will give a brief background on the CDI, we'll walk through the FY19 CDI Request for Proposals process, and answer any questions you might have.

If you have attended one of these sessions in the past, there is new information this year, so we're glad you are here.

Why we have the CDI RFP

The purpose of the CDI RFP is to build USGS capabilities in data integration and management.

CDI projects.... are short-term | leverage existing resources | demonstrate scalable solutions | improve access to data and tools | develop best practices | share lessons | involve interdisciplinary teams | can be modified for reuse | communicate their value to the wider USGS.

The CDI RFP increases communication across boundaries and creates opportunities to work with people outside of your normal program.

The proposals process involves commenting and voting from your peers | new collaborations | communicating without disciplinary jargon | community-building.



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CDI - Overview

- Chartered as Council on Data Integration in 2009 to:
 - Lead development of Data Integration Strategy
 - Recommend data integration guidelines
 - Promote USGS-wide data integration
- Evolved into an open Community of Practice



Executive Sponsors:
Kevin T. Gallagher (left) and Tim Quinn (right)

Communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly – Etienne Wenger, 2011



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Originally, the Council on Data Integration was chartered in 2009 as a formal organizational group. It evolved into the USGS Community for Data Integration (CDI) which is a volunteer-based forum that represents a Community of Practice within the USGS. The CDI focuses on opportunities to share information across disciplines and organizational structures, invigorating cross-boundary communication. CDI facilitates new and innovative paths to data discovery, exchange, and interoperability. CDI creates awareness of relevant data products, and promotes interdisciplinary science through the interaction and integration of scientific information.

CDI membership is comprised of USGS data practitioners, data providers, and data consumers from all Mission and Geographic Areas of the USGS. But we also include and welcome many external partners in government, academia, and industry to share best practices, and collaborate on finding solutions to data integration challenges.

We have two Executive Sponsors for CDI, Kevin Gallagher, who is the Associate Director for Core Science Systems, and Tim Quinn, who is the Acting Chief of the Office of Enterprise Information.

The CDI Purpose

- Advance understanding of Earth systems through enhanced use of data and information
- Provide a forum for sharing ideas and learning new skills
- Increase the visibility of work with data and information



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1. Advance understanding of Earth systems through enhanced use of data and information including associated tools and techniques. Members propose the needed topics and we learn faster together.

2. Provide a forum for people doing work with data integration to come together to share ideas, to solve problems, to leverage resources, as well as to learn new skills and techniques.

3. Advance overall USGS capabilities with data and information by increasing visibility of the work of many people throughout the USGS. The idea behind CDI is that we work across any formal structure and communicate across boundaries and that is what makes CDI unique. It is completely volunteer-based, so those who are interested come together, regardless of Mission Area to work towards a common goal of moving us forward with respect to data and information capabilities.

In the past couple years, Kevin and Tim have been guiding us to use our expertise and help the USGS accomplish its priorities, you'll hear more about this when we talk about some of this year's themes.

CDI Today

- [Monthly Forum](#)
 - 2nd Wednesday at 11 ET
- [Collaboration Areas](#)
- [Annual Workshop/Webinar](#)
- [RFP Process](#)



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CDI has grown from 50 to more than 900 USGS members across Mission and Geographic Areas and external partners

There are four areas where CDI operates:

Our monthly forums provide a great opportunity for our members to share user stories, successes and challenges.

CDI sponsors a series of Working Groups that address a number of different data challenges. These groups work to develop standards and tools, improve interoperability and information infrastructure as well as data preservation within USGS and its partners and collaborators. Focus Groups address more specific issues and report up to their respective Working Group.

The Annual Workshop/Webinars provides a way for members to get together face to face to exchange ideas, learn about products, and network with peers. We have these every two years and the next one is scheduled for June 4-7 2019 in Boulder, CO.

And finally we have the proposals, projects, and products that stem from the ideas of our members and their collaborators, which we will be talking about today.

FY19 CDI RFP

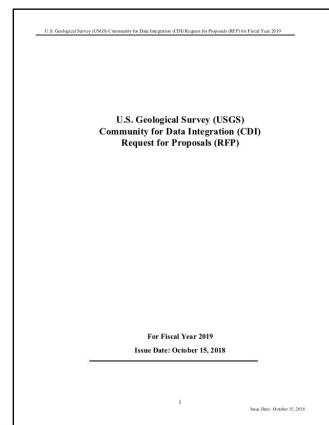
<https://my.usgs.gov/confluence/display/cdi/2019+Proposals>

2019 Proposals

Created by Hsu, Leslie, last modified on Oct 15, 2018

This page describes the Fiscal Year 2019 Community for Data Integration (CDI) Request for Proposals (RFP). Please watch this page for updates throughout the proposals process.

- [Guidance Document](#)
- [Estimated Schedule](#)
- [Collaboration Forum](#)
- [Why do we have the Community for Data Integration Request for Proposals?](#)
- [How does the proposals process work?](#)
- [What kind of projects are successful?](#)



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You can follow along if you download the guidance document from the link on the screen. I will also put this link in the chat so you do not have to type it in.
<https://my.usgs.gov/confluence/display/cdi/2019+Proposals>

2 Phase RFP

Phase 1: Statement of Interest

- 1.5 page document, due November 16, 2018
- Relate to Science Support Framework, Guiding Principles, and Evaluation Criteria
- Lightning presentations to introduce ideas to the community (November 28, 2018)
- Commenting and voting by CDI Community Members
- Top ranked SOIs invited to submit full proposal

Phase 2: Invited Full Proposal

- Proposal narrative - 7 page maximum, not including plain language summary, detailed budget, data management planning form, letters of support, CVs
- Relate to Science Support Framework, Guiding Principles, and Evaluation Criteria
- Evaluated by formal Review Panel
- Recommendations presented to CDI Executive Sponsors for selection and award



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CDI has really been funding projects since its inception; however, the process by which those projects were selected has evolved over the years. For the last few years we have had a 2 phase RFP process, which has worked very well, so we are continuing that process this year.

For the first phase, we ask participants to submit a very brief, 1.5 page, statement of interest. The projects should relate to the Science Support Framework, the CDI guiding principles, and the evaluation criteria, all of which I will discuss in more detail. All of the Statements of Interest will be voted on by the community and approximately 20 SOI's will be invited to submit a full proposal. Last year we received 32 SOIs and 15 were asked to submit a full proposal and 9 proposals were selected to be funded.

The full proposals consist of a proposal narrative, which should not exceed 7 pages. Full proposals should also have a cover sheet, a general public summary, a detailed budget, a data management plan, and CVs for the PI's. Optionally, you may include CV's for other project collaborators and letters of support. Again, the proposals should demonstrate how your project is related to the Science Support Framework, the CDI Guiding Principles, and the Evaluation Criteria.

The full proposals will be evaluated by a formal review panel and their recommendations will be presented to the CDI Executive sponsors for selection and award.

Details of the FY19 RFP

- Eligibility: USGS employee must be PI, but collaboration is encouraged
- Projects complete in 3-6 months
- Mid Project and End of Project Reporting
- Required to include travel \$ to the 2019 CDI Workshop in Boulder, CO (June 4-7, 2019).
- All results should be publicly available and follow USGS Fundamental Science Practices
- Topical themes: FAIR data, reuse of CDI products, building national datasets, and biosurveillance
- Proposals on any topic still accepted



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Each project must have a USGS employee as a PI; however, we do encourage collaboration with outside entities. External organizations can receive funding; however, it will be the responsibility of the PI and his/her science center to handle those agreements. We don't have the resources to handle a lot of contracts and external agreements. We need to be able to do a change of allocation within the organization.

CDI projects are very short term and usually need to be completed in 3-6 months. The distribution of funds really depends on the congressional budget cycle and when we get funding. We usually get funding around March; however, we have been as late as July, so please keep that in mind when you are planning your projects. All projects funds need to be spent by the end of September, regardless of when we get funding.

There is mid-project and end of project reporting. The mid-project reporting is very informal and is really just checking in to make sure that you are spending the money and your project is on track. At the end of the fiscal year, we ask for a project status report and let you know the deadline for the formal report, to be included in a Funded Project publication. We have recently extended the deadline several months from the end of the fiscal year to make sure projects can report as many products and outputs as possible.

We do require that you include travel money in your budget for one person to attend the CDI Workshop in Boulder in June 2019, to present about your project.

We also require that all products and results from CDI projects are made publicly available and now that the Data management Instructional Memos have been released, we require that you comply with those policies. Many projects have publication deliverables such as a USGS Open File Report. We understand that publishing is a long process and that most it is not feasible to have publications out in the 3-6 month time range. We just like to encourage PI's to try to publish as soon after the project as possible. We also require that software products resulting from projects be maintained in a USGS Repository - more about that later.

FY19 RFP Themes

This year, the CDI executive sponsors are encouraging proposals that produce building blocks for an Integrated Predictive Science Capacity with the following themes.

- Producing FAIR (Findable, Accessible, Interoperable, and Reusable) data and tools for Integrated Predictive Science Capacity (see the [Enabling FAIR Data site](#))
- Reusing or repurposing modular tools such as those that were developed by [previous CDI projects](#), including the [CDI Risk Map](#).
- Building authoritative national datasets for hazards or assets (integrating data and assessing quality),
- Tools and methods for biosurveillance of emerging invasive species and health threats.



Funding

- Max request = \$50K
- CDI funds can be used for salary, travel, other expenses
- CDI funds CANNOT be used for field work or Core Science System Mission Area federal employees salary
- Proposal must have 30% matching funds from salary, travel, other grants, etc.



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We do have a maximum of \$50,000 for funding requests for these projects. We generally have about \$500,000 to award to projects and this funding cap for individual projects allows us to fund a larger number of projects.

These funds can be used for salary, travel, and other expenses; however, they cannot be used for field work, data collection, or Core Science System Mission Area federal employees salary. Kevin Gallagher, one of our executive sponsors is from the Core Science System Mission Area and he encourages all of his employees to participate in CDI projects; however, he expects that our salaries are contributed as in-kind matching funds.

So, that takes me right into our matching requirements. Every proposal must have 30% matching funds from salary, travel, other grants. These matching funds help to demonstrate the commitment from the project PI's and science centers. We have had science centers pay for their own overhead costs as part of the matching funds. Feel free to be creative in how you achieve the matching funds as long as it does demonstrate a commitment to your project specifically.

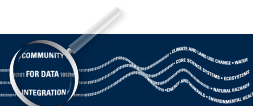
New in FY19

- **FY19 Themes** - FAIR data, re-using previous CDI products, building national datasets, biosurveillance
- **Collaboration Forum** - Method for finding collaborators - technical or disciplinary
- **Proposal Submission** - Uses Google Forms
- **Commenting and Voting** - Using the [CDI wiki](#) and the SimplyVoting app, not IdeaLab (a.k.a. UserVoice)
- **Lightning SOI Presentation Session**, November 28, 3pm ET - *one-slide template, a single image, and option to pre-record*
- **Examples of previous successful SOIs and Proposals** ([link](#))



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Here are the new elements this year.

First, there is a topical focus on four themes. Last year was the first year that we had a theme for the RFP. All other topics will still be considered.

Second, we are again trying to help to match projects in need with people with web development or programming skills. There is information about this on the Collaboration Forum, linked to the main proposal wiki page, and the best way to learn about it is to go there or to email me at cdi@usgs.gov.

Next, this year we will be using new methods for submission, commenting, and voting. The old systems we used were getting a bit out of date, so we will be using Google Forms, our CDI wiki, a new voting app.

I'm excited about this, we will have the return of the SOI lightning presentation session, we haven't done this for a couple years, but this one slide exercise will help the community to learn about all of the SOIs before voting. This is a great exercise in communication! We want you to be able to let the CDI know why your idea is so important.

We have a new page that lists the most highly ranked SOIs and Full proposals of the past two years.

How to frame your idea

- [Science Support Framework \(SSF\)](#)
 - Applicants select top 3 SSF elements.
- **Guiding Principles**
- **Evaluation Criteria**



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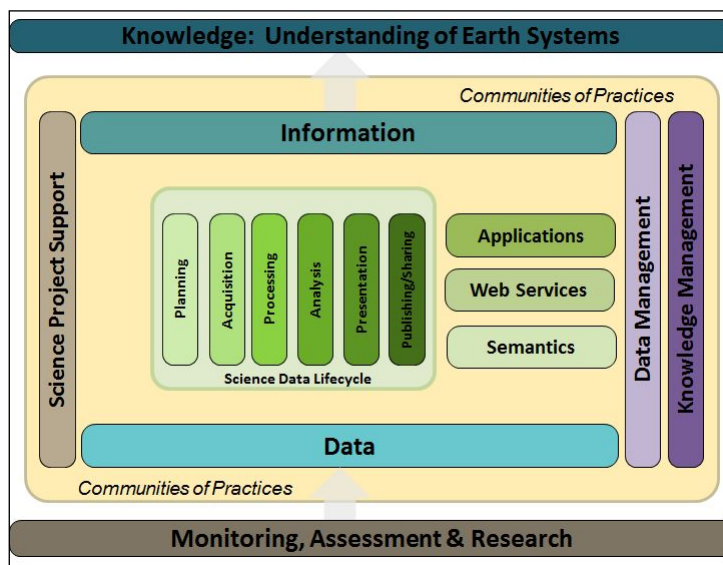
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I mentioned earlier that projects must relate to three aspects of the RFP:
Science Support Framework (SSF)
 Applicants select top 3 SSF elements.
Guiding Principles
Evaluation Criteria

CDI Science Support Framework

The foundation for sharing science



The CDI Science Support Framework was developed by CDI members in 2012. You can place all of CDI's activities and concerns in this diagram, and I hope you see where you and your idea fit. It flows from the bottom to the top – from monitoring to data to information and finally to knowledge. After a few views, it becomes quite logical.

Horizontal Bars

The horizontal elements in the SSF represent the “what” of the CDI: products and tools, the things that contribute to the advancement of scientific data and that lead to the development of knowledge and understanding of the Earth's systems.

Vertical Bars

The vertical elements in the SSF represent the “how” of the CDI: the processes, the implementation of standards and best practices, and the interactions among people, data, and technology used to achieve data integration. While we see this vertical flow of data assets, there is also a horizontal flow from left to right. We start with support for science projects. As projects begin to take shape, they flow through the science data lifecycle and are managed all along the way until eventually, it's not just data that we are managing, but knowledge itself.

Communities of practice are the foundation for CDI and all its products – the communities of people working towards the goal of advancing scientific data

integration across the USGS.

In the past couple years, Bureau priorities have included progress toward a USGS Integrated Predictive Science Capacity. A way for us to take full advantage of the USGS variety of tools and and data to make science predictions. Placing the CDI projects in this framework helps us to see what building blocks we need and support.

Guiding Principles

- Focus on targeted efforts that yield near-term benefits to Earth and biological science
- Leverage existing capabilities and data
- Implement and demonstrate innovative solutions (e.g. methodologies, tools, or integration concepts) that could be used or replicated by others at scales from project to enterprise
- Preserve, expose, and improve access to Earth and biological science data, models, and other outputs
- Develop, organize, and share knowledge and best practices in data integration



These guiding principles drive what we do here at CDI. We are looking for projects that have a near-term benefit. We work with technologies that are changing rapidly and the idea is to be pushing the envelope further and to really be at the forefront and produce innovative solutions. We want to leverage existing capabilities and data. We are not about going out and collecting new data...that is the responsibility of the various mission areas. Instead we want to do more with the data that we already have. This includes things like helping to preserve, expose, and improve access to the data, to models and to other outputs. As well as developing, organizing and sharing knowledge and best practices in data integration. We are really interested in projects that have a broad impact, that go beyond just a single mission area or science center, and can really scale both geographically and across disciplines.

Evaluation Criteria

Scope (25%)

- Is there a demonstrated need for the effort/activity?
- How much does the proposal contribute to the guiding principles and element(s) of the CDI Science Support Framework?
- Is there potential impact beyond a single Program, Center, Mission Area, or Region?
- What is the anticipated return on investment (e.g. cost savings, code utilization, publications, operational efficiencies, etc.)?

Technical Approach (25%)

- Is the technical approach applied to the problem reasonable?
- Is the approach innovative?
- Does it employ a proven, reliable technique that is appropriate to the problem?

Project Experience and Collaboration (25%)

- Does the project team have the appropriate experience, special qualifications, and skills for successful completion of the project.?
- Have inter-disciplinary or cross-mission area/region collaboration and partnerships been pursued where appropriate?

And finally, we have the Evaluation Criteria. There are six criteria on which statements of interest and full proposals will be evaluated: scope, technical approach, project experience and collaboration, sustainability, budget justification and the timeline. The scope, technical approach and project experience make up a total of 75% of the score.

Evaluation Criteria (2)

Sustainability, Outreach, and Communication (15%)

- Does the proposal describe the intended sustainability of the project deliverables (products, tools, services, metadata) for long-term access, reusability, and potential for integration?
- Will all products resulting from the project be freely shared and made available, without charge or restriction, to the CDI, the broader USGS community, and beyond as appropriate?

Budget Justification (5%)

- Is the budget at or below \$50,000 and does it meet the minimum 30% in-kind match?
- Are salaries and contractor costs, travel, and equipment/ publication costs justified and appropriate to project needs?
- If the proposal lists contractor support, does the proposal describe how the contract work will be managed and documented?

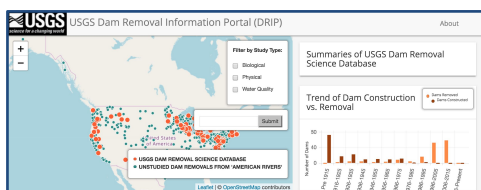
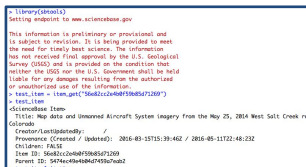
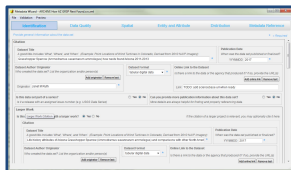
Timeline (5%)

- Are the project phases and milestones described in the technical approach?
- Is the proposed workload feasible given the project duration.

Here are the remaining criteria. In the first topic here we have included Outreach and Communication to the Sustainability category - this is because when we did a recent review of the past funded projects, many of the PIs told us that they thought that further outreach and communication would have benefited their project's use and sustainability.

In one page you only have room to briefly hit on these criteria, in the full proposal they should be explained in more detail.

Example Past CDI Projects



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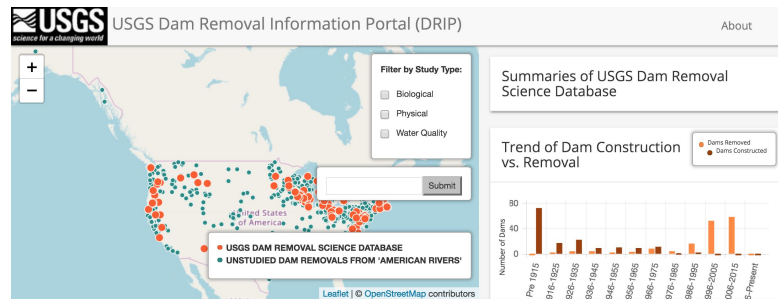
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Here are some examples of the projects that our communities develop, I'll go into more detail of each in the following slides.

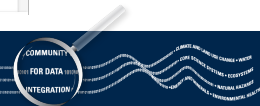
DRIP: Dam Removal Information Portal

- Funded in 2015
- OFR describing methods inspired other CDI projects to take similar steps to publish and expose datasets using existing infrastructure.
- Continues with related projects funded from other sources.



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sbtools: an R package for ScienceBase

- Funded in 2015
- Tool to more easily access ScienceBase through R (command line)
- A command-line tool easy enough for the CDI coordinator to use!
- Increases accessibility to ScienceBase data, information, and services.

```
> library(sbtools)
Setting endpoint to www.sciencebase.gov

This information is preliminary or provisional and
is subject to revision. It is being provided to meet
the need for timely best science. The information
has not received final approval by the U.S. Geological
Survey (USGS) and is provided on the condition that
neither the USGS nor the U.S. Government shall be held
liable for any damages resulting from the authorized
or unauthorized use of the information.
> test_item = item_get("56e82cc2e4b0f59b85d71269")
> test_item
<ScienceBase Item>
  Title: Map data and Unmanned Aircraft System imagery from the May 25, 2014 West Salt Creek rock
  Colorado
  Creator/LastUpdatedBy: /
  Provenance (Created / Updated): 2016-03-15T15:39:46Z / 2016-05-11T22:48:23Z
  Children: FALSE
  Item ID: 56e82cc2e4b0f59b85d71269
  Parent ID: 5474ec49e4b0d7459a7eab2
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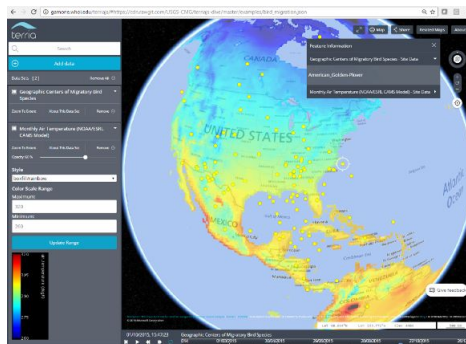
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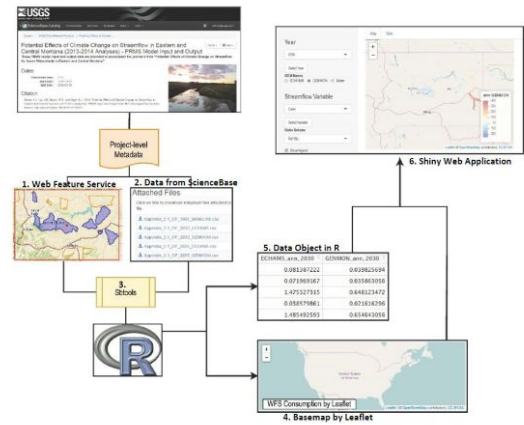
terriaJS - Evaluating a new open-source, standards-based framework for web portal development

- Funded in 2016
- Assessed a framework for creating web portals by non-developers with the current USGS landscape of available tools.
- Framework later used by multiple USGS groups including the CDI Risk Map Project.



Recommended practices for publishing digital data through Sciencebase

- Funded in 2016
- Documented processes for USGS scientists to organize and share data using ScienceBase, and to provide an example interactive mapping application to display those data
- Topic in high demand: webinar outside of CDI attracted over 100 participants.



Data Management Training Clearinghouse

- Funded in 2016
- Tool to discover and evaluate data management training modules.
- Now being used as a platform for the American Geophysical Union's FAIR Data project to organize training resources for scientists.

The screenshot shows the homepage of the ESIP Data Management Training Clearinghouse. The header includes the ESIP logo and navigation links: Home, Browse, Search, Submit, Help, and About. A 'Log in' link is also present. The main content area features a 'Welcome to the DMT Clearinghouse' section with a description of the registry, its collaborative origins (U.S. Geological Survey's Community for Data Integration, the Earth Sciences Information Partnership (ESIP), and DataONE), and contact information for clearinghouseEd@esipfed.org. A 'Read More' button is provided. To the right is a circular diagram of the 'DataONE Life Cycle' with steps: Plan, Collect, Assess, Describe, Preserve, Discover, Integrate, and Analyze. Below the welcome section are three green-bordered boxes: 'Search' (with a text input and 'Search' button), 'Browse' (with a 'Browse' button), and 'Submit' (with a 'Submit' button).



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More information on past projects

Browse past projects to see what has been funded by CDI.

- [ScienceBase CDI Community](#) (by year)
- [Annual Reports](#) have project summaries*

*To access *all* of the materials, email cdi@usgs.gov to become a CDI member.



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Proposal Concepts *not* CDI focused

- Supporting the collection of new data or field research
- Monitoring, assessment, or dataset creation projects. Although CDI may fund the creation of some broadly-usable (“foundational”) data content, this is normally considered out of scope
- Projects that would normally be funded by individual Program Areas or other proposal processes such as the [John Wesley Powell Center for Analysis and Synthesis](#), [Center of Excellence for Geographic Information Science \(CEGIS\)](#), [Innovation Center for Earth Sciences \(ICES\)](#), and [Office of Organizational and Employee Development \(OED\)](#). ([Explanation of different funding opportunities.](#))



So, we have discussed what makes a good CDI project. Now let's talk about the types of proposals that do not fit with CDI. Since we are focused on leveraging existing data, CDI does not support the collection of new data or field research. There are some situations where CDI may fund the creation of “foundational” data content that is broadly applicable across the survey; however, it is usually considered to be out of scope.

Projects must be cross-cutting and broadly applicable. CDI will not fund projects that would normally be funded by your Program Area. Proposals that just have a single PI and no collaboration with other science centers or mission areas often raise a red flag. If the projects are to be broadly applicable, we really would like to see collaboration across programs. I know especially for the SOI's that there really isn't a lot of time to fully develop these collaborations, but just making some initial calls will go a long way. The details of collaboration can then be fleshed out for the full proposals.

New RFP Submission Process

- Submission by Google Form on the [FY19 Proposals wiki page](#)
- Prepare the information listed in Appendix A of the Guidance Document
- Use the [template](#) .docx, submit as a PDF
- Use the SOI checklist on the last page of the Guidance Document
- You can save your progress by clicking to the end and Submitting. You can update your information until the deadline on **November 16, 5pm ET**.



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Feel free to test out the form now. It is new this year. You can help us by checking it out soon and letting us know if there is anything that is not clear.

Tips and Observations

- Communicate potential for partnerships and reusability – Use the [Collaboration Forum](#)
- Visit the [FAQ page](#)
- Speak to a broad USGS audience - you are trying to gain support for your idea and must communicate its value to the voters
- Submission form tips
 - Save/update often, compose text on external text editor
- Budget – double check that you have followed all guidelines
 - Travel to the 2019 CDI Workshop, June 4-7 in Boulder, CO.
- Practice and time your 1-minute lightning talk - sometimes less is more. How will your project benefit USGS?



SOI Commenting and Voting Process

- Commenting will open the Monday after statements are due
- Lightning Presentations - Wednesday, **November 28**, 3pm ET
- Community voting through our CDI wiki
 - Must be a CDI Member by **Nov 29** (email to join: cdi@usgs.gov)
 - Consider all SOIs before voting
 - Community can comment on SOIs – important for PIs to respond
 - Rank top proposals
- Voting closes – **December 14**, 11:59pm ET
- Full proposals selected from all SOIs submitted. Based on variety of factors:
 - # of votes
 - Topical focus, USGS emerging priorities



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After the submission deadline, we will have a community voting process. It usually takes us about a week to ensure that the submissions are all complete and to move them to our voting system, which is UserVoice. In order to vote you must be a CDI member. To become a CDI member email cdi@usgs.gov.

We ask that all voting participants read through all SOIs before voting to ensure that every proposal is considered. And we ask that each voter consider the three aspects that I mentioned before: the Science Support Framework, the guiding principles, and the evaluation criteria when voting.

Most announcements will be made via the CDI mailing list, so let us know if you would like to join the CDI community. They will also be posted on the 2019 Proposals wiki page.

Key Dates in FY19

November 16 @ 5 pm ET	Statements of Interest (SOI) Due
November 28 @ 3pm ET	SOI Lightning Presentation Session
November 30 - December 14	Voting Period
Early January 2019	Invite Full Proposal Submissions
Mid-February 2019	Full Proposals Due
March 2019	Awarded Projects Announced
September 30, 2019	Awarded Funds Spent



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Questions?

Email: cdi@usgs.gov

Website: <http://www.usgs.gov/cdi>

RFP Announcement:

<https://my.usgs.gov/confluence/display/cdi/2019+Proposals>



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Guidance document

Extra slides



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Code Repositories

- Examples: Previous repos on GitHub or Bitbucket
- Gitlab recently available to USGS (e.g., `code.usgs.gov`)
- PIs will be given options to create repositories
- Repositories should be public after the completion of the project.



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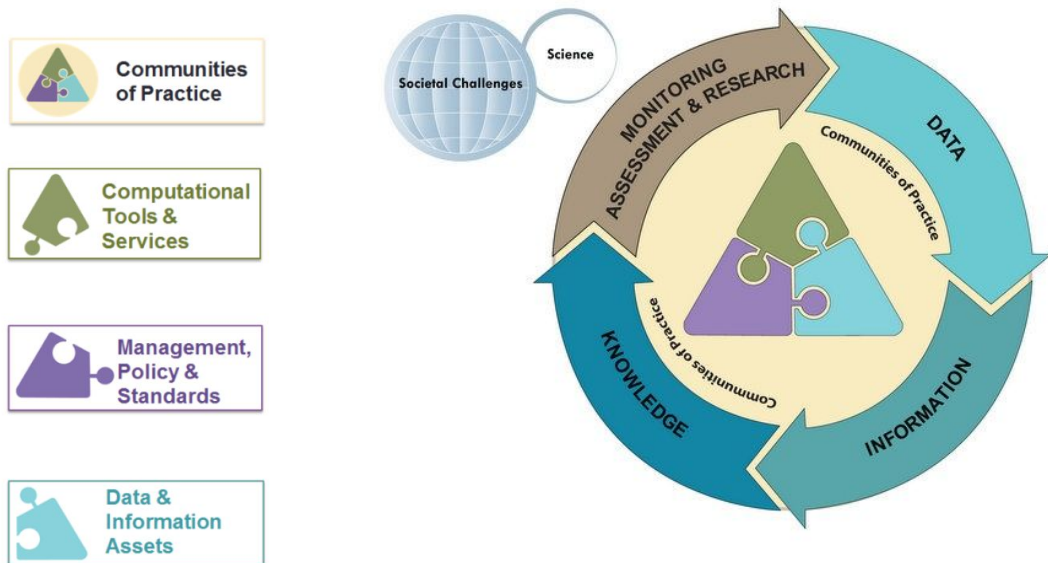


There have been very recent developments on options for USGS PIs to manage, version, and publish their code, for example the site `code.usgs.gov`, which is a GitLab instance. Options are evolving, and the Bitbucket option for past years is no longer recommended.

After the funded projects are announced, we will notify PIs of the up-to-date options to create USGS repositories and share them with their external collaborators, this will likely involve GitHub and GitLab options.

At the end of the fiscal year when projects are complete, we expect that each repository will be made public.

Big Picture



This is the big picture that leads to the Science Support Framework. The colors are all connected throughout the diagrams. At the USGS and at other research institutions, our scientists conduct monitoring assessments and research. In doing so, they collect data, turn those data into information and eventually knowledge. This knowledge helps to answer to some of the major questions around our societal challenges. CDI operates in this center area as communities of practice. These communities of practice support the outer process by helping to develop data and information assets, computational tools and services, and management policies, standards, and best practices.

CDI Science Support Framework - FY18 Projects

